UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
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Refer to:
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Re: ESA Section 7 Consultation on Forest Service and Bureau of Land Management Actions Affecting Southern Oregon/Northern California Coho Salmon in Oregon

Dear Forest Service and Bureau of Land Management Administrators:

This responds to your Biological Assessment (BA), dated July 15, 1998, requesting consultation on proposed USDA Forest Service (USFS) and USDI Bureau of Land Management (BLM) actions that may affect Southern Oregon/Northern California coho salmon (SONC coho), Klamath Mountain Province steelhead trout (KMP steelhead), sea-run cutthroat trout, and Southern Oregon/California Coastal chinook salmon (SOCC chinook).

BACKGROUND

The objective of this biological opinion is to determine whether the ongoing and proposed actions of the USFS and BLM in the Rogue River and Southern Oregon Coast basins south of Cape Blanco (hereafter referred to as the Rogue/South Coast Basins) are likely to jeopardize the continued existence of the threatened SONC coho (*Oncorhynchus kisutch*), the proposed threatened SOCC chinook (*O. tshawytscha*), or result in the destruction or adverse modification

of their proposed critical habitat. In addition, this opinion considers KMP steelhead (*O. mykiss)* and sea-run cutthroat trout (*O. clarki clarki),* both of which are candidate species.

The SONC coho Evolutionarily Significant Unit (ESU) was listed as threatened under the Endangered Species Act (ESA) by the National Marine Fisheries Service (NMFS) on May 6, 1997 (62 FR 24588). Critical habitat for SONC coho was proposed by NMFS on November 25, 1997 (62 FR 62741). The SOCC chinook ESU and SOCC chinook critical habitat were proposed for listing under the ESA on March 9, 1998 (63 FR 11482). This consultation is undertaken pursuant to section 7(a)(2) of the Endangered Species Act (ESA) and its implementing regulations, 50 CFR 402.

The Land and Resource Management Plans for the Siskiyou, Rogue River, and Winema National Forests, and the Resource Management Plans for the Coos Bay and Medford BLM Districts, as amended by the April 13, 1994, Record of Decision (USDA and USDI, 1994; referred to hereafter as the Northwest Forest Plan), were recently the subject of a formal programmatic ESA consultation which concluded on March 18, 1997. The March 18, 1997 Biological Opinion and Conference Opinion (NMFS 1997b), hereafter referred to as the LRMP Opinion, evaluates the effects of USFS and BLM land management plans on the species considered in this opinion, and consequently provides an important basis for many of NMFS' determinations.

The July 15, 1998, BA was submitted to the NMFS by the Siskiyou, Rogue River, and Winema National Forests, and the Coos Bay and Medford BLM Districts. The BA was prepared by the interagency Level 1 team of fish biologists for the Rogue River and South Coast Basins south of Cape Blanco (hereafter referred to as the Level 1 team) as established by guidance provided in the February 26, 1997, interagency streamlining consultation agreement.

The July 15, 1998, BA represents the latest modification of a BA that was originally submitted to NMFS on October 6, 1997. NMFS responded to the administrative units with letters dated November 21, 1997, and February 5, 1998, requesting additional information and documentation. A revised BA was subsequently accepted by NMFS on March 13, 1998. Informal consultation for actions which NMFS concurred were "not likely to adversely affect" SONC coho was concluded on April 15, 1998. In light of issues raised by the April 28, 1998, United States District Court order regarding Section 7 ESA consultation in the Umpqua basin, the BA was again substantially modified by submissions dated July 15, 1998. These submissions from the USFS and BLM units included a modified list of proposed projects and provided substantial new documentation. Minor amendments to the July 15, 1998, BA were submitted to NMFS after review by the Level 1 team on January 8, 1999. All actions submitted in this BA are "likely to adversely affect" (LAA) SONC coho and have been reviewed by the Level 1 team.

The Coos Bay and Medford BLM Districts, and the Siskiyou and Rogue River National Forests (hereafter referred to as the administrative units) request conference and consultation on two categories of actions: (1) programmatic actions routinely implemented by the administrative units; and (2) individual actions proposed by the units.

NMFS is unable to complete consultation at this time on the proposed programmatic actions. In addition, NMFS and the Medford BLM District have agreed to postpone consultation on the

Musty Doughnut Timber Sale. NMFS anticipates that these actions will be submitted in a new BA. Therefore, this opinion addresses only the actions listed in Table 3.

The BA documents the baseline and effects determinations at three different spatial scales: (1) site, (2) fifth field hydrologic unit code watershed[1] (hereafter referred to as HUC 5 watershed), and (3) Section 7 watershed[2] (hereafter referred to as Section 7 subbasin). In addition, the BA provides documentation demonstrating that the projects are consistent with the Aquatic Conservation Strategy (ACS). Site specific baseline descriptions and effects determinations for each individual action proposed in the BA were completed by the USFS and BLM. The Level 1 team collaborated on the HUC 5 watershed and Section 7 subbasin determinations. The documentation supporting those baselines and effects determinations at each spatial scale is included in the BA and hereby incorporated into this opinion by reference.

This opinion concludes that the effects of the USFS and BLM actions listed in Table 3, together with the cumulative effects and effects of the environmental baseline within the Rogue/South Coast basins, are not likely to jeopardize the continued existence of the SONC coho, SOCC chinook, KMP steelhead, or sea-run cutthroat. NMFS concurs that implementation of these actions will not result in the destruction or adverse modification of proposed critical habitat for either SONC coho or SOCC chinook. This opinion also authorizes incidental take of SONC coho resulting from the actions in Table 3 (see Incidental Take Statement). Should SOCC chinook, KMP steelhead, or sea-run cutthroat be listed at a later date, the NMFS expects that this opinion will serve as the basis for a biological opinion for those ESUs. Further, the following Incidental Take Statement is expected to become effective following the NMFS' adoption of this opinion as the biological opinion once a SOCC chinook, KMP steelhead, and/or sea-run cutthroat listing becomes final (50 CFR § 402.10(d)).

PROPOSED ACTIONS

The proposed actions in Table 3 are "likely to adversely affect" (LAA) listed, proposed, or candidate salmonid species within the Rogue/South Coast basins. Table 4 identifies the subbasin and watershed in which each proposed action is located. Although some actions may be completed in 1999, others (e.g., prescribed burns and many timber sales) may not be fully implemented for up to 10 years. The descriptions below are based upon information provided in the BA and supporting documents.

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[1]Fifth field HUC watersheds are hierarchal subdivisions of western Oregon river subbasins that were cooperatively delineated by the USFS and BLM to facilitate watershed analysis. Fifth field watersheds (approximately 20-200 square miles in size) provide a proper context for assessing many processes and features affecting ecosystem function.

[2] Section 7 watersheds were identified by the Level 1 team to represent major subbasins of the Rogue River and South Coast basins having important biological and physical attributes. The Section 7 watersheds, with few exceptions, are equivalent to the standardized fourth field HUC subbasins defined by the United States Geological Survey.

Timber Sales and Associated Activities

Activity Descriptions Common to All Administrative Unit Proposals

The BA identifies a variety of silviculture prescriptions and yarding techniques proposed by the four administrative units to harvest timber. The diverse silviculture prescriptions, however, typically fit into one of the following categories: (1) even-aged management of a forest stand to achieve a condition in which trees have less than a 20-year age difference (often referred to as regeneration harvest, but typically includes clearcut, seed tree, and shelterwood prescriptions) (FEMAT, 1993, p. IX-12); and (2) uneven-aged management that simultaneously maintains tall forest cover, recurring regeneration of desirable species, and the orderly growth and development of trees through a range of diameter or age classes (FEMAT, 1993, p. IX-38). Uneven-aged stands are developed and maintained by individual tree selection (thinning or reducing stand density) and group selection (cutting clumps up to two acres in size) prescriptions.

With the exception of one action, interim riparian reserve widths identified in the NWFP (USDA and USDI, 1994) are maintained. The one exception is the Gold Beach Replacement Volume/Shelf Timber Sale proposed by the Siskiyou NF, where the riparian reserve widths for portions of nine intermittent streams (4.3 acres total) are adjusted per the Lawson Creek Watershed Analysis findings (USFS 1997, p. 49). The interim riparian reserve widths for these intermittent streams (175 feet) are proposed after adjustment to range from 30 to 170 feet. This proposed adjustment is consistent with NWFP guidance (i.e., modification permissible only after watershed analysis is completed, a site specific analysis is conducted and described, and the rationale for final Riparian Reserve boundaries is presented through the appropriate NEPA decision-making process) (USDI and USDA, 1994, p. B-13).

Yarding is proposed to be accomplished by tractor, helicopter, and/or cable systems. BLM proposes roughly equal proportions of the three types of yarding systems, while USFS sales are primarily yarded by skyline cable and helicopters due to steeper topography. Best Management Practices (BMPs) for both yarding and road haul exist for each agency; for example BLM guidelines prohibit tractor yarding on fragile soils (i.e., highly erodible soils, slump or earth flow terrain, or sites with high water tables), restrict yarding operations to slopes less than 35 percent, and limit the percentage of harvest area which can be accessed by new skid roads.

Nearly all the new road construction proposed by the administrative units will be built in conjunction with timber sales. The proposed new road construction fits into three categories: permanent, semi-permanent, and temporary. Semi-permanent roads are decommissioned within one year following the timber sale, whereas temporary roads are built and decommissioned during the dry season of the same year. Repair and/or decommissioning of existing roads within the timber sale areas and haul routes are also proposed by the administrative units.

In addition to tree felling, yarding, road haul, planting site preparation, and road construction/repair, the timber sales in Table 3 often propose activities unrelated to the harvest of timber (e.g., non-commercial thinning, site preparation for planting, prescribed burning, and stream habitat improvements).

Administrative Unit Proposals

The Rogue River National Forest (NF) proposes timber harvest in the Applegate River, Little Butte Creek, and Upper Rogue River Section 7 subbasins. The four timber sales (1,106 total harvest acres) are primarily uneven-aged management prescriptions (985 acres) with 38 acres of the commercial thinning proposed to occur within riparian reserves of non-fish bearing streams. Approximately 1.9 miles of permanent road construction, 1.8 miles of road reconstruction, as well as 5.4 miles of road decommissioning associated with these timber sales are proposed. None of the proposed road work is within riparian reserves.

The Siskiyou NF proposes timber harvest in the Illinois River, Lower Rogue, and the Middle Rogue Section 7 subbasins. The six timber sales (941 total harvest acres) involve 345 acres of even-aged and 596 acres of uneven-aged prescriptions. Approximately 41 acres of the commercial thinning will occur within the riparian reserves of non-fish bearing streams. A total of 4.2 miles of new road will be built in association with the timber sales, including 2.1 miles of permanent, 1.7 miles of semi-permanent and about 0.4 miles of temporary road. Approximately 2.6 miles of road decommissioning and 11 miles of road stormproofing[3] (including 2 culvert upgrades for fish passage) are also proposed.

The Medford BLM District (Medford BLM) proposes timber harvest in the Upper Rogue River, Applegate River, Middle Rogue River, and Illinois River Section 7 subbasins. The 17 timber sales (11,539 total harvest acres), includes 9,150 acres of uneven-aged management and 2,389 acres of even-aged prescriptions. Approximately 1,602 acres of the commercial thinning will take place within riparian reserves, with more than 1,500 acres of the harvest occurring in the riparian reserves of intermittent streams. The road building proposed in association with these sales includes 9.1 miles of permanent, 0.4 miles of semi-permanent, and 2.4 miles of temporary road construction. In addition, 5.9 miles of road will be reconstructed or maintained, and another 39 miles of road will be stormproofed. Approximately 0.3 miles of permanent road construction, 0.2 miles of reconstruction, and 2.6 miles of road decommissioning is proposed within riparian reserves. An additional 29.7 miles of road decommissioning will occur outside riparian reserves.

Road, Bridge, and Culvert Work Not Associated With Timber Sales

These proposed repairs, decommissions, and upgrades include actions undertaken as part of watershed restoration efforts, as well as basic maintenance and flood repairs.

[3] Stormproofing entails road improvements that address peak flows, stream crossing failures, stream diversions, and deliveries of sediments (e.g., upgrading culverts to accommodate 100-year floods, improving ditch relief, outsloping roads, unstable fill removal, and installing rolling dips).

The Medford BLM proposes repairing or upgrading nine culverts and decommissioning 4.5 miles of road in the Applegate River, Lower Rogue, and Middle Rogue Section 7 subbasins.
The Coos Bay District BLM (Coos Bay BLM) proposes replacing/upgrading 12 culverts and 2.3 miles of road decommissioning in the Chetco/South Coast Section 7 subbasin. The Siskiyou NF proposes culvert repairs at three sites in the Illinois River Section 7 subbasin, as well as flood repair (e.g., culvert installation/upgrades, retaining wall construction, road fill replacement, and road realignment) at 23 sites in the Elk River Section 7 subbasin.

Prescribed Fire

The Rogue NF, Siskiyou NF, and Medford BLM propose a total of approximately 14,000 acres of prescribed burn over the next five to ten years in the Applegate River, Middle Rogue, and Illinois River Section 7 subbasins. Although about 1,900 acres of riparian reserves are within identified prescription boundaries, the riparian reserve acreage actually expected to burn is considerably less because the fires in most cases will be designed to create a mosaic of unburned and burned areas.

Miscellaneous Actions

The Medford BLM proposes to exchange 280 acres in the Middle Rogue Section 7 subbasin for 162 acres of privately owned land in the Bear Creek Section 7 subbasin. Although no fish-bearing streams are in the trade parcels, the exchange will result in a net loss of about 1.8 miles of intermittent, headwater stream channels to the BLM.

BIOLOGICAL INFORMATION

SONC Coho

SONC coho were listed as threatened under the ESA on May 6, 1997 (62 FR 24588). Although there are currently limited data to assess population numbers or trends, NMFS believes that all coho salmon stocks comprising the SONC coho ESU are depressed relative to past abundance. The status and relevant biological information concerning coho salmon in this ESU are well described in final and proposed rule listings from the Federal Register and Biological Review Team findings. Historical coho salmon abundance in the region has decreased from an estimated 150,000 to 400,000 native spawning fish to approximately 10,000 naturally produced adults
(62 FR 24588; 62 FR 62741; Weitkamp et al. 1995, pp. 128-129; NMFS 1997b). Within the Oregon portion of the SONC coho ESU (i.e., the Rogue/South Coast basins), the Rogue River remains the primary producer of coho salmon. Based upon cannery shipments, historic native coho production from the Rogue River has been estimated to be 60,000 fish. Though sampling may underestimate total returns, wild coho returns to the lower Rogue River from 1979 through 1996 have averaged about 3,630 fish (RVCOG 1997a, pp. 45-47). Approximately 1300 miles of stream habitat in the

Rogue/South Coast basins are currently thought to be potential coho salmon habitat (RVCOG 1997a, pp. 60-64).

SONC coho, as with other anadromous salmonids, face numerous and varied influences which affect their productivity. Their present depressed condition is the result of several longstanding, human-induced factors (e.g., habitat degradation, harvest, water diversions, and artificial propagation) that exacerbate the adverse effects of natural environmental variability (drought, floods, and poor ocean conditions). NMFS (1997c) identifies and discusses the following freshwater factors that contribute to the decline of coho salmon: changes in channel morphology, changes in stream substrate, loss of instream roughness (structure), loss of estuarine rearing habitat, loss of wetlands, loss/degradation of riparian areas, water quality degradation, changes in flow, fish passage impediments, elimination of habitat, direct take, and cumulative effects.

SOCC Chinook

SOCC chinook (which occur between Cape Blanco, Oregon and Point Bonita, California) were proposed for listing as threatened under the ESA on March 9, 1998 (63 FR 11481). The SOCC chinook ESU includes all naturally spawned coastal spring and fall chinook spawning from Cape Blanco to Point Bonita. There is a downward trend in abundance in most populations for which data are available, with declines especially pronounced in spring-run populations. Fall chinook in the Rogue River represent the only relatively healthy population(s) NMFS identified in this ESU (Huntington et al. 1994, pp. 10-15).

Although SOCC chinook may not utilize tributary habitats as far upstream as other salmonid species, they are subject to the same human-induced factors (e.g., habitat degradation, harvest, water diversions, and artificial propagation) and natural environmental variability that influence the productivity of all anadromous salmonids. Mining and unscreened irrigation diversions have been identified as having adverse effects on chinook and other salmonids in the Rogue River basin (Rivers 1963, as cited in the NMFS status review, Myers et al. 1998). Kostow (1995, chapter 1) estimated that one-third of the spring chinook spawning area in the Rogue River was made inaccessible by the construction of Lost Creek Dam in 1977.

KMP Steelhead

KMP steelhead (which occur between Cape Blanco, Oregon and the Klamath River basin in California) were originally proposed for listing as threatened in 1995 (March 16, 1995, 60 FR 14253; August 9, 1996, 61 FR 41541). NMFS has since determined that KMP steelhead are not presently at risk of extinction nor at risk of becoming endangered in the foreseeable future (March 19, 1998, 63 FR 13347). NMFS, however, will reconsider this species as a candidate for listing within the next four years.

Sea-Run Cutthroat Trout

Sea-run cutthroat trout (which occur from California to Washington) are included in an ongoing status review by NMFS and were officially listed as a candidate species on July 14, 1997 (62 FR 37560). Completion of the sea-run cutthroat status review is expected forthwith. The LRMP opinion, the NMFS status review for Umpqua River sea-run cutthroat (Johnson et al. 1994) and Hall et al. (1997) provide the best compilations of sea-run cutthroat biology that currently exist.

CRITICAL HABITAT

SONC Coho

Critical habitat for SONC coho (which occur between Cape Blanco, Oregon, and Punta Gorda, California) was proposed by NMFS to include all accessible reaches of all rivers (including estuarine areas and tributaries) between the Mattole River in California and the Elk River in Oregon on November 25, 1997 (62 FR 62741). Critical habitat consists of the water, substrate, and adjacent riparian zone (300 horizontal feet from normal high water line) of all streams and estuaries that can still be occupied by any life stage of coho salmon within these accessible reaches.

SOCC Chinook

Critical habitat for SOCC chinook was proposed by NMFS concurrent with the proposed ESA listing on March 9, 1998 (63 FR 11481). Critical habitat for SOCC chinook has been proposed to consist of the species' current freshwater and estuarine range, and certain marine areas between Point Bonita in California and the Elk River in Oregon. Critical habitat consists of the water, substrate, and adjacent riparian zone (300 horizontal feet from normal high water line) of all streams and estuaries that can still be occupied by any life stage of chinook salmon within these accessible reaches.

EVALUATION OF PROPOSED ACTIONS

The standards for determining jeopardy are set forth in Section 7(a)(2) of the ESA as defined by the consultation regulations, 50 CFR 402. When NMFS issues a conference or biological opinion, it uses the best scientific and commercial data available to separately determine whether a proposed Federal action is likely to: (1) jeopardize the continued existence of a proposed, listed, or candidate species, and/or (2) destroy or adversely modify a proposed or listed species' critical habitat.

NMFS (1997a) describes the criteria NMFS uses in the jeopardy analysis for USFS and BLM projects within the range of the NWFP. In summary, NMFS considers two steps: (1) is the proposed project in compliance with the standard and guidelines for the relevant land allocations, and (2) does the proposed project meet all pertinent ACS objectives as evaluated by the NMFS' "Matrix of Pathways

and Indicators" (NMFS 1996). Actions meeting these conditions will result in improved habitat conditions, and thereby increase freshwater survival of SONC coho, SOCC chinook, KMP steelhead and sea-run cutthroat trout. Therefore, actions by the administrative units that comply with NWFP standards and guidelines and do not prevent or retard attainment of ACS objectives are not likely to jeopardize SONC coho, SOCC chinook, KMP steelhead or sea-run cutthroat trout (NMFS 1997a).

NMFS also uses the Matrix of Pathways and Indicators (MPI) evaluation in determining whether actions destroy or modify critical habitat (i.e., habitat alterations that appreciably diminish the value of critical habitat for both the survival and recovery of a listed species). Activities that would destroy or adversely modify a species' critical habitat would also likely jeopardize that species.

The development and use of the MPI and how it addresses the biological requirements of anadromous salmonids discussed below is summarized in NMFS (1997a) and NMFS (1998).

Biological Requirements

The biological requirements of SONC coho are discussed in NMFS's coho status review (Weitcamp et al. 1995) and the LRMP Opinion (NMFS 1997b). The NMFS status review of chinook stocks (Myers et al. 1998) discusses biological requirements of SOCC chinook. The biological requirements of KMP steelhead are discussed in NMFS's status review (Busby et al. 1994) and the LRMP Opinion. The LRMP opinion, the NMFS status review for Umpqua River

sea-run cutthroat (Johnson et al. 1994) and Hall et al. (1997) discuss the biological requirements of sea-run cutthroat.

For this consultation, NMFS finds that the biological requirements of Pacific salmonids are best expressed in terms of the MPI's habitat indicators (e.g., water quality, habitat access, physical habitat elements, channel condition, and hydrology). The MPI's "properly functioning" values represent the best available information for defining the biological requirements of Pacific salmonids in terms of environmental factors necessary for sufficient prespawning survival, egg-to-smolt survival, and upstream/downstream migration.

Because of overlaps in range and similarities in habitat indicator "properly functioning" values, this opinion simultaneously evaluates the effects of the proposed actions in Table 3 upon SONC coho, SOCC chinook, KMP steelhead, and sea-run cutthroat.

Environmental Baseline

Action Area

The "action area" is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved by the action" (50 CFR § 402.02). The action area for this

consultation thus includes all of the lands administered by the Siskiyou and Rogue National Forests, the Medford and Coos Bay BLM Districts, and adjacent private lands within the Rogue/South Coast Basins.

The action area includes the entire Rogue River basin as well as a number of smaller drainages that enter directly into the Pacific Ocean from Cape Blanco south to the California border. Major Rogue River tributaries include the Illinois and Applegate Rivers. Other major drainages that comprise the South Coast portion of the action area include the Elk, the Pistol, the Chetco, and the Winchuck Rivers. The bulk of the action area is within the Klamath/Siskiyou physiographic province, although the eastern third of the area is comprised by primarily Western Cascades and High Cascades physiographic terrain. Although 60% of the approximately 3.8 million acres that make up the action area are administered by either the USFS or BLM, much of the western coast line and many low gradient, interior valleys found near Medford, Grants Pass, and Cave Junction are privately owned. The USFS administered lands are in relatively large blocks in the Illinois River, lower Rogue River, and headwaters of the Applegate and upper Rogue River. The BLM administers a substantial number of small land parcels interspersed with private property (i.e., a "checkerboard pattern") in the middle and upper Rogue River, as well as more contiguous blocks of land in the Applegate River subbasin and the Wild and Scenic River portion of the Rogue River.

Watershed Environmental Baseline

The environmental baseline for the Rogue/South Coast basin is discussed on pages 13-14 of the LRMP Opinion, as well as two planning assessments recently conducted by the Rogue Valley Council of Governments (RVCOG). RVCOG (1997a, p. 79) summarizes the environmental baseline of 27 "core areas" (watersheds containing reaches critical to maintaining coho salmon populations in the Rogue/South Coast basins) using water quality and habitat elements similar to those utilized in the LRMP Opinion. The habitat indicators most often identified for the core areas as limiting for coho are water temperature, low flows, and riparian quality. A majority of these watersheds are also at risk of being limited in instream wood and riparian canopy cover. RVCOG (1997b, p. 66) summarized the environmental baseline of 18 "high value" steelhead streams. Water temperature, sediment, low flows, instream wood, riparian habitat, and canopy cover were determined to be limiting in most of these streams.

Table 1, below, summarizes the environmental baselines provided in the BA for the HUC 5 watersheds assessed with the NMFS Matrix. The BA also provides the documentation supporting each determination (e.g., stream surveys, watershed analyses, monitoring). The results are similar to those previously provided by RVCOG (1997a and 1997b), with indicators of watershed condition (i.e., road density and location, riparian reserves, disturbance history) as well as physical access, hydrology, large wood, and water temperature being the indicators most often not properly functioning.

Table 1. Summary of Environmental Baseline for Rogue River and South Coast HUC 5 watersheds. (N= 37)

Habitat Indicator	Properly Functioning	At-Risk	Not Properly Functioning
Access **Physical Barriers**	11	5	21
Habitat Elements **Sediment**	7	18	12
Large Wood	6	12	19
Pool Character/Quality	7	15	15
Off-channel Habitat	10	11	16
Channel Conditions **Width/Depth Ratios**	7	17	13
Streambank Condition	12	14	11
Floodplain Connectivity	9	11	17
Flow/Hydrology **Peak Flows**	6	11	20
Watersh. Condition **Road Density/Location**	5	9	23
Disturbance History	5	12	20
Riparian Reserves	6	9	22
Landslides/Erosion	5	17	15
Water Quality **Temperature**	3	6	28
Hazardous Materials	22	15	0

The BA demonstrates that habitat indicators for HUC 5 watersheds containing one or more NWFP key watersheds[4] are typically "at risk" or "properly functioning", whereas non-key watersheds tend to have high proportions of "not-properly" functioning indicators. Sixteen of the HUC 5 watersheds in the action area contain NWFP key watersheds.

ANALYSIS OF AFFECTS

Effects of Proposed Actions

At a regional landscape scale, the effects of the actions were considered in the development of the ACS (FEMAT 1993, chapter V), and the NWFP standards and guidelines (USDA and USDI 1994).

The BA and supporting documentation documents compliance for each of the actions with the following critical components of the Northwest Forest Plan (NWFP): standards and guidelines, watershed analysis, watershed restoration, land allocations, and the ACS objectives. Upon review, the Level 1 team concurs that the proposed projects are consistent with these components relevant to listed, proposed, and candidate salmonids. In addition, the Level 1 team concurs that each action is consistent with the reasonable and prudent measures and terms and conditions of the LRMP Opinion.

The effects of the actions proposed in the BA were evaluated by the Level 1 team at project, watershed, and subbasin scales using criteria (i.e., the MPI and its associated Checklist and Dichotomous Key) based upon the biological requirements of listed, proposed, and candidate salmonid species (Pacific salmonids).

Project-level Effects

The project-level determinations are the effects likely to occur within the drainages and subwatersheds where the actions will occur. The assessment is purposefully conservative in order to account for potential incidental take of individual fish.

Project-level Effects of Timber Sales and Associated Activities

Detailed discussions of the potential effects of timber harvest and associated activities on salmonid habitat are presented by FEMAT (1993, chapter V), Spence et al. (1996, p.105-119, 160-166), as well as a NMFS document entitled "Potential Effects of Timber Harvest and Associated Activities on Salmonid Habitat and Measures to Minimize Those Effects" (NMFS, 1997e). These are incorporated by reference into this opinion. NMFS has considered the applicability of the above analyses to each of the timber sales identified in the BA and in Table 3 of this opinion. NMFS is not aware of any other special characteristics of the particular sales that would cause greater or materially different effects on

[4]Key watersheds are a component of the Northwest Forest Plan's ACS and are to be managed for at-risk fish and water quality (USDA and USDI, 1994, p. 10).

the subject salmonids species and their habitat than is discussed in these references. Similarly, NMFS is not aware of any newly available information that would materially change these previous effects analyses.

The proposed timber sales and associated activities were responsible for most of the habitat degradation noted in the BA's Checklists. Table 2 below summarizes the number and type of MPI habitat indicators degraded at the project-level scale of assessment by these activities.

Table 2. Summary of Matrix habitat indicator degrades at the site or project level resulting from individual timber sales and associated activities.

Habitat Indicator	Number of Site Degrades
Water Quality (sediment and turbidity)	29 - all short term
Substrate (sediment)	22 - all short term
Peak Flows	1 - short term
Road Density	4 - all short term
Disturbance History	6
Riparian Reserves	9 - all short term

Water Quality and Substrate. The degrade determinations in turbidity and substrate reflect the likelihood that ground disturbance resulting from activities associated with the timber sales (e.g., road construction and repair, yarding, prescribed burning, log haul, road decommissioning) will deliver fine sediments to the stream network. Road construction and decommissioning involving stream crossings are the activities likely to generate most of the fine sediments. Prescribed burning is also a likely mechanism. Many of the proposed actions entail activities which deliver fine sediments over multiple years, but the sediment is expected to dissipate each year during annual high water events (i.e., sediment delivery will not exceed sediment transport capacity). The Level 1 team has agreed upon the effects determinations and the adequacy of the proposed mitigation measures. NMFS notes that in most cases, the actions are adjacent or immediately upstream of Pacific salmonid habitat and the environmental baselines are either "at-risk" or "not-properly functioning" for the turbidity and substrate habitat indicators. However, NMFS concurs with the BA's effects determinations and the Level 1 review. The prescribed riparian and instability buffers make it unlikely that substantive amounts of fine sediment will originate from within timber harvest units located outside riparian reserves. The proposed prescriptions (light

thinning and individual tree selection), placement of sale units, and buffers are adequate to minimize sediment deliveries from the timber harvest to occur within riparian reserves.

Peak Flows. The single degrade in peak flow determinations was attributable to the Layman Gulch Timber Sale proposed by the Siskiyou NF. This action proposes 335 acres of timber harvest (13 regeneration and 322 thinning) and 2,450 acres of prescribed burn in a subwatershed susceptible to rain-on-snow events because of the subwatershed's elevation and environmental baseline. The Siskiyou NF predicts short term, minor peak flow increases in non-fish bearing tributaries. However, any increase of peak flows in Sucker Creek are not expected to be sufficient to adversely affect aquatic resources. The minimal regeneration harvest (13 acres in 1-2 acre openings), the avoidance of harvest in high risk areas, and continued road decommissioning and stormproofing in the watershed are all reasonable and prudent measures to reduce possible adverse effects.

Road Density. New road construction will result in an increase in road density at four sites. Effects should be minimal since the road building meets the LRMP Opinion's requirements for road construction. In two cases, the increase is temporary since the road will be decommissioned within 1 year of sale completion. In all four watersheds, the Siskiyou NF's ongoing restoration program is decommissioning more than equivalent mileage per watershed analysis recommendations.

Disturbance History. The six degrades in disturbance history are attributed to timber harvest and road construction occurring in the project areas. In five of these cases, the projects are located within matrix[5] lands and the environmental baseline for this indicator is "not properly functioning" due to past timber harvest and roading. The other degrade in disturbance history will occur in a NWFP key watershed which is currently "properly functioning" for this indicator. In all six cases, however, neither individual nor combined impacts of the proposed disturbances are likely to be of sufficient intensity to significantly affect aquatic resources. In each case, the proposed activities are guided by watershed analysis findings.

Riparian Reserves. The nine riparian reserve degrades reflect the potential effects of proposed commercial thinning and prescribed burning. NMFS has reviewed each proposal for actions within riparian reserves, noting that riparian-dependent resources are to receive priority emphasis with riparian reserves (USDA and USDI 1994, p. A-5). The administrative units have determined that these proposed silvicultural prescriptions are necessary to control stocking and obtain desired vegetation characteristics (e.g., larger, healthier conifers and structural diversity). Watershed analyses findings support the stated objectives of all timber harvest proposed in the riparian reserves and the proposed projects are consistent with NWFP standards and guidelines (see TM-1(c), USDA and USDI 1994, p.C-30).

The burn prescriptions are designed to restore fire dependent plant communities, as well as to reduce vegetation densities and the risk of catastrophic fire in stands where the natural fire disturbance regime has been suppressed for decades. Any adverse impacts to Pacific salmonids from the silvicultural or

[5] Matrix is one of the seven land allocations identified by the Northwest Forest Plan. Matrix lands represent 16 percent of the federal land within the range of the spotted owl, and is the area in which most timber harvest and silvicultural activities will be conducted (USDA and USDI, 1994, p. 7).

burn treatments are expected to be minor since the vast majority of the proposed activities are limited to the riparian reserves of intermittent stream channels and in all cases, riparian functions such as shading and large wood recruitment have been addressed in the BA and supporting documentation.

In addition, Level 1 team review has ensured that any road construction proposed within riparian reserves is minimized to the greatest extent possible and limited solely to stable locations. The administrative units have also tied decommissioning of existing riparian reserve roads to each proposal for new construction within riparian reserves, resulting in a net reduction in stream crossings, valley bottom road density, as well as a reduction in mass wasting or chronic erosion potential within the riparian reserves.

Restores at the project scale. A number of other activities proposed by the administrative units in association with the timber sales are also expected to have beneficial effects at the project scale. Localized reductions in road densities, landslide and erosion rates, drainage network extension, and peak flows were noted as benefits from some road decommissioning and improvements. Fish habitat will be improved by the addition of whole trees or large wood to several streams.

Project-level Effects of Road, Bridge, and Culvert Projects Not Associated With Timber Sales

These actions, especially those associated with stream crossings, will deliver small pulses of fine sediment to the stream network. In every case, the proposed design features should limit the extent and magnitude of any resultant adverse effects. Only short reaches downstream of the activities are expected to be affected and the delivered sediments should dissipate with annual high water.

The BA notes that two projects have the potential for adverse effects from Hazardous Materials. In both cases, heavy machinery will be repairing storm-damaged stream crossings. The proposed projects have been evaluated by local biologists and physical scientists and all appropriate design features and measures necessary to minimize adverse impacts will be incorporated into the project. Spill plans and equipment inspections are standard for these activities.

Each administrative unit also noted benefits to aquatic resources occurring from these road, bridge, and culvert projects. For example, fish passage will be restored at several sites, potential road fill and stream crossing failures will be prevented, and minor amounts of road decommissioning and improvements are proposed.

Project-level Effects of Prescribed Fire

Much of the prescribed fire is proposed and analyzed as an activity associated with timber sales. The effects of prescribed burns (i.e., short term impacts from increased sediment delivery to the stream network and burning of riparian vegetation) are similar whether implemented in association with timber sales or as individual projects. Although many timber sales propose varying amounts of prescribed

burning to prepare replanting sites, most prescribed burning proposed is designed to reinstate a more natural fire regime and reduce the threat of infrequent, high-intensity wildfires. The prescriptions and mitigation measures in each case are tailored to site specific conditions and objectives. In addition, much of the proposed prescribed burning would be implemented incrementally over 5-10 years, which should reduce the likelihood and magnitude of adverse impacts. Although there will be short term impacts from the activities, the actions are consistent with watershed analysis findings.

Project-level Effects of Miscellaneous Actions (Pilot Rock Land Exchange)

This land exchange proposed by Medford BLM is likely to provide both short term and long term protection to watershed functions in the Upper Emigrant Creek subwatershed at the potential expense of habitat indicators in the Upper Grave Creek and Pleasant Creek subwatersheds. The potential degrades in Water Quality (temperature), Turbidity, Substrate, Riparian Reserve, Large Woody Debris (LWD) and Pool Quality are attributable to interrelated and interdependent timber harvesting expected to occur on lands transferred to private ownership.

The extent and magnitude of the indicator degrades will be dependent upon the forest practices utilized on the 280 acres of land transferred to private ownership. In the short term, however, no habitat variables are expected to be adversely affected because the BLM lands to be traded away (including riparian reserves) are primarily plantations of young conifers that would not likely be harvested for approximately 40 years. The aquatic habitats to be traded away are primarily small, intermittent streams. None of the streams involved in the trade are fish-bearing.

The parcel to be acquired by BLM through the trade contains a stretch of the Pacific Crest Trail, but is otherwise intact. Although acquisition of the intact parcel will not directly benefit anadromous salmonids, the BLM found the trade consistent with the NWFP because other ecosystem benefits (habitat connectivity, blocked-up federal ownership in landslide-prone terrain, peregrine falcon habitat, sensitive plants, properly functioning riparian reserves and wet meadows) are obtained.

NMFS concurs and notes that adverse effects in the short term from the trade are unlikely. Although it is not possible to accurately predict future forest practice regulations, NMFS anticipates ongoing efforts in the State of Oregon will provide adequate measures to ensure coho survival under a range of environmental conditions (May 6, 1997, 62 FR 24588).

Project Level Effect Conclusions

The BA indicates watershed analysis findings have been incorporated into the project planning for all key watersheds and many non-key watersheds. The Level 1 team has found that the proposed projects are consistent with the critical components of the NWFP relevant to listed, proposed, and candidate salmonids, and that the projects include appropriate measures to minimize adverse effects.

Site-specific analyses indicate that any adverse impacts from the proposed actions are expected to be of limited extent and duration. NMFS finds that temporary adverse effects to Pacific salmonids and their habitat may occur with the proposed projects. The spatial and temporal extent of potential adverse effects which may lead to incidental take is described for each project in the BA. However, in each case, these adverse impacts will not substantively retard nor prevent attainment of properly functioning habitat indicators important to Pacific salmonids at the project scale.

Activities that improve degraded sites or prevent additional damage are proposed in each of the watersheds listed in Table 4. Many of these activities are designed to provide long term benefits at the expense of minor short term effects, although some will provide protection as soon as implemented (e.g., stormproofing and erosion control).

HUC 5 Watershed and Section 7 Subbasin Effects

The Level 1 team assessed the effect of proposed actions at the HUC 5 watershed and Section 7 subbasin scales using the following steps: (1) characterize the environmental baselines of the MPI habitat indicators for each HUC 5 watershed; and then (2) evaluate the net effect of all proposed and previously consulted upon projects upon the environmental baseline for each HUC 5 watershed. The HUC 5 watershed results were subsequently used to repeat steps 1 and 2 for each Section 7 subbasin.

The environmental baseline assessment considers: (1) the past and present activities of all federal, state, or private actions, (2) planned federal actions that had already undergone consultation, and (3) the effect of contemporaneous state and private actions within each watershed. The effects of both passive and active restoration were also considered in the watershed scale baseline and effects determinations. The Level 1 team utilized 10 years as the spatial scale for the effects determinations in order to consider all the activities proposed in
Table 3.

The BA documents the Level 1 team use of the best available information (e.g., watershed analyses, environmental assessments, monitoring, stream surveys, and professional judgement) in completing the steps above for 37 watersheds and 9 subbasins. ACS consistency findings and the project level MPI assessments of the proposed projects also aided the Level 1 team's assessments. The Level 1 team also took into account the effects of the proposed projects on refugia and other areas supporting high salmonid productivity (i.e., strongholds) in each of the HUC 5 watersheds.

In each watershed, the net effect of all proposed and previously consulted upon actions maintained every Checklist habitat indicator. In other words, the combined direct and indirect effects of the proposed projects are not of sufficient extent or magnitude to affect watershed or subbasin conditions.

HUC 5 Watershed and Section 7 Subbasin Effect Conclusions

The BA and supporting documentation indicate that the proposed actions will maintain the existing baseline condition for each HUC 5 watershed. In the next decade, NWFP key watersheds will

maintain primarily "at-risk" and "properly functioning" habitat indicators, whereas non-key watersheds will maintain many "not-properly functioning" indicators. Ecosystem recovery is expected to continue on federal lands, however, because of the implementation of riparian reserves, watershed analysis, and watershed restoration (FEMAT, 1993, p.V-72). Key watersheds were expected to recover at faster rate than other watersheds, but all federal watersheds are expected to recover watershed, riparian, and aquatic processes (FEMAT, 1993, p.V-75).

The NMFS notes that (1) the proposed actions are superior to the management contributing to the degraded environmental baselines found in many non-key watersheds, and (2) because the ACS is based upon natural disturbance processes, it may take decades to accomplish its objectives (USDA and USDI, 1994, p. B-9).

Interrelated and Interdependent Effects

The proposed Pilot Rock Land Exchange is the only proposed action associated with interrelated and interdependent effects. Any adverse effects upon listed, proposed, or candidate fish resulting from this land exchange are not expected to occur for several decades. The severity of any adverse effects occurring will be dependent upon the management practices in effect at that time. Although it is not possible to accurately predict future forest practice regulations, NMFS anticipates ongoing efforts in the State of Oregon will provide adequate measures to ensure coho survival under a range of environmental conditions.

Cumulative Effects

Cumulative effects (as defined in 50 CFR § 402.02) in the Rogue/South Coast basins are discussed on pages 40-43 of the LRMP Opinion. These respective analyses of the biological requirements, environmental baseline or cumulative effects described above are incorporated herein by this reference. The NMFS is not aware of any newly available information that would materially change these previous analyses. Both the final rule for listing SONC coho (62 FR 2458) and the proposed rule for SOCC chinook (63 FR 11482) discuss at length the influences of state and private actions on these species and their survival.

Watershed analyses from the action area indicate conditions on private land are often an important influence on watershed processes and salmonid habitat. Although only 40% of the action area are state or private lands, management practices on these lands likely have a disproportionate influence for two reasons: (1) many low gradient, valley bottoms that historically provided juvenile coho overwinter habitat are privately owned, and (2) many watersheds considered as strongholds for anadromous fish in the Middle and Upper Rogue River basin have a checkerboard pattern of alternating private and BLM lands.

SECTION 7(a)(2) DETERMINATIONS

In reaching these conclusions, NMFS has utilized the best scientific and commercial data available as documented herein and by the BA and documents incorporated by reference.
Based upon the BA and Level 1 team review, NMFS concurs that the proposed projects are consistent with the NWFP and its associated components (i.e., the ACS objectives, standards and guidelines, watershed analysis, watershed restoration, and land allocations).

Site-specific analyses indicate that any adverse impacts from the proposed actions are expected to be of limited extent and duration. NMFS finds that temporary adverse effects to Pacific salmonids and their habitat may occur with the proposed projects. However, in each case, these adverse impacts will not substantively retard nor prevent attainment of properly functioning habitat indicators important to Pacific salmonids at the project scale. At the watershed scale, the net effect of the proposed actions maintains and restores watershed habitat indicators and ecological processes that define the biological requirements of Pacific salmonids.

Therefore, NMFS concludes that when the effects of these proposed actions are added to the environmental baseline and cumulative effects occurring in the relevant actions areas, they are not likely to jeopardize the continued existence of SONC coho, SOCC chinook, KMP steelhead or sea-run cutthroat trout. In addition, NMFS concludes that the proposed actions will not result in the destruction or adverse modification of proposed critical habitat for SONC coho or SOCC chinook.

REINITIATION OF CONSULTATION

Reinitiation of consultation is required if discretionary Federal involvement over the action has been retained or authorized and: (1) the amount or extent of taking specified in the Incidental Take Statement below, is exceeded; (2) the action is modified in a way that causes an effect on the listed species that was not previously considered in the BA and the biological opinion; (3) new information or project monitoring reveals effects of the action that may affect listed species in way not previously considered; or (4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR § 402.16). The LRMP opinion (NMFS 1997b, p. 51) lists examples of situations or findings requiring reinitiation of consultation.

INCIDENTAL TAKE STATEMENT

Effects resulting from road, bridge, and culvert construction and repair are expected to be the primary source of incidental take associated with the proposed actions listed in Table 3. Because of the limited amount of new road construction and location of the road, and implementation of appropriate mitigation measures for the other road, bridge, and culvert activities, sediment impacts are expected to be minimized. Long-term sediment inputs should be reduced through continued road decommissioning or

repair of high risk sites. Effects of timber harvesting in riparian reserves are also expected to be minimized because of location, landform, and harvest method. Effects of prescribed burning will be minimized because of design criteria and location.
NMFS expects that the incidental take associated with the other effects associated with timber harvest discussed in this opinion, and all other proposed actions listed in Table 3, will also be minimal.

Adverse effects resulting from management actions such as these are largely unquantifiable in the short-term and may not be measurable as long-term effects on the species' habitat or population levels. Therefore, even though the NMFS expects some low level of incidental take to occur due to these actions, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the species themselves.

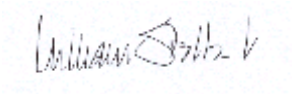
The incidental take statement in the LRMP Opinion (NMFS 1997b, pp. 63-72) provides reasonable and prudent measures and terms and conditions to avoid or minimize the take of listed salmonids from actions beneficial to anadromous salmonids (instream fish habitat enhancement and restoration, culvert upgrades, and road decommissioning), and road construction that may be applied to site specific operations if appropriate. According to the procedural expectations of the LRMP Opinion (NMFS 1997b), the USFS and BLM Level 1 teams discussed the subject actions on the Siskiyou, Rogue River, and Winema NF's and Coos Bay and Medford BLM Districts at meetings in Medford and Roseburg, Oregon on November 25, 1997, January 6, 15, & 16, February 26, June 24, July 15 & 16, 1998, and January 8, 1999. The Level 1 teams found that the subject actions are consistent with the LRMP Opinion's standards and guidelines, as well as with NMFS' criteria evaluating the ACS objectives pertinent to Pacific salmonids, and therefore found that all reasonable and prudent measures and corresponding terms and conditions in the LRMP Opinion (NMFS 1997b) are appropriate for the actions covered by this opinion.

For the actions not covered by the LRMP Opinion (timber harvest, prescribed burning, and miscellaneous land management actions), the Level 1 teams found that incidental take of anadromous salmonids resulting from these actions has been adequately minimized by project design. Thus, no reasonable and prudent measures in addition to project requirements are necessary in this opinion for these actions. The Level 1 teams also agreed that all these actions are consistent with NMFS's criteria for evaluating the ACS objectives. These Level 1 team deliberations also occurred at the above-mentioned meetings in Medford and Roseburg, Oregon.

NMFS hereby apply the findings, reasonable and prudent measures, and terms and conditions set forth in the Incidental Take Statement of the programmatic LRMP Opinion (NMFS 1997b) to these actions. Therefore, NMFS further authorizes such minimal incidental take provided by the Forest Service, BLM, and their applicants comply with those measures, terms and conditions.

Questions regarding consultation on these actions should be directed to Craig Burns of my staff at (541) 957-3355.

Sincerely,



William Stelle, Jr.
Regional Administrator

cc: Neil Anderson, Winema National Forest
Craig Burns, NMFS
Dale Johnson, Medford BLM
Randy Frick, Rogue River National Forest
Bill Hudson, Coos Bay BLM
Karl Stein, BLM, Oregon State Office
Scott Woltering, Forest Service, Northwest Regional Office

Table 3. Ongoing and Proposed Individual Actions (by administrative unit) that are Likely to Adversely (LAA) Affect SONC coho or SOCC chinook.

Medford District BLM

AshlandResource Area

Appleseed T.S.

Grants Pass Resource Area

POC T.S.
Wild Wonder T.S.
ERFO/Jobs in the Woods Projects
3+3 T.S.
Peavine T.S.
Stratton Hog T.S.
Jumpin' Jack T.S.
Cenoak T.S.
Berlin Mummer T.S.
North Murphy T.S.
Shiney Queen T.S.
Savage Green T.S.

Glendale Resource Area

Pilot Rock Land Exchange
Serpent's Grave T.S.
Grave Creek West Project:
- Perkins Folly T.S.
- Rock Falls T.S.
- Angora Butte T.S.

Butte Falls Resource Area

ERFO Projects (12 sites, Evans Ck)
Titanic T.S.

Table 3 (continued)

Siskiyou National Forest

Powers Ranger District
Road and Flood Repair

Illinois Valley RD
Home Page T.S.
Layman T.S.
ERFO Flood Repair

Galice Ranger District
Barr None T.S.
Briggs Creek Replacement Volume T.S. (Father Oak)
Sha-Kett T.S.

Gold Beach Ranger District
Replacement Volume T.S./Shelf T.S.

Coos Bay District BLM

Myrtlewood Resource Area
Mayfield Creek Culvert
Stream Crossing & Grade Culvert
Jim Ray Creek Stream Crossing
Road Decommissioning
Noxious Weed Control (not aerial)

Rogue River National Forest

Ashland Ranger District
Wagner Gap T.S.
Flood 1997 Restoration and Repair (South Fork Little Butte Ck)

Applegate Ranger District
Beaver Newt T.S.
Natural Fuels Prescribed Burn

Butte Falls Ranger Districts
Bibbits T.S.
Brush T.S.

Table 4. Location of Proposed Actions, by Section 7 Subbasin.

Action and Administrative Unit*	HUC 5 Watershed (s)	NWFP Key Watershed?	Watershed Analysis Completed?
UPPER ROGUE RIVER SECTION 7 SUBBASIN			
Titanic T.S. - MBLM	Big Butte Creek	No	Yes
Brush T.S. - RNF	Elk Creek	Yes (Elk Creek)	Yes
LITTLE BUTTE CREEK SECTION 7 SUBBASIN			
Bibbits T.S. - RNF	Little Butte Creek	Yes (Little Butte Creek)	Yes
Flood 1997 Restoration - RNF	Little Butte Creek	Yes (Little Butte Creek)	Yes
APPLEGATE RIVER SECTION 7 SUBBASIN			
Appleseed T.S. - MBLM	Middle Applegate Beaver/Palmer/Star	No No	Yes Yes
Beaver/Newt T.S. - RNF	Beaver/Palmer/Star	Yes (Beaver Creek)	Yes
Natural Fuels Prescribed Burn - RNF	Beaver/Palmer/Star	Yes (Beaver Ck and Palmer Ck)	Yes
Wagner Gap T.S. - RNF	Little Applegate River	Yes (Little Applegate R)	Yes
POC T.S. - MBLM	Williams Creek	No	Yes
ERFO/JITW - MBLM	Williams Creek	No	Yes
Wild Wonder T.S. - MBLM	Lower Applegate River	No	Yes, basin scale
North Murphy T.S. - MBLM	Lower Applegate River	No	Yes, basin scale
MIDDLE ROGUE RIVER SECTION 7 SUBBASIN			
ERFO Projects - MBLM	Evans Creek	No	Yes
Pilot Rock Land Exchange - MBLM	Evans Creek Grave Creek	No No	Yes In Progress
Cenoak T.S. - MBLM	Rogue - Recreation	No	Draft
Stratton Hog T.S. - MBLM	Rogue - Recreation	No	Draft

Table 4. (continued)

Action and Administrative Unit*	HUC 5 Watershed (s)	NWFP Key Watershed?	Watershed Analysis Completed?
MIDDLE ROGUE RIVER SECTION 7 SUBBASIN			
Peavine T.S. - MBLM	Rogue - Recreation	No	No
Sha-Kett T.S. - SNF	Rogue - Recreation	No	Yes
Shiney Queen T.S. - MBLM	Jumpoff Joe Creek	No	Draft
Jumpin' Jack T.S. - MBLM	Jumpoff Joe Creek	No	Draft
Berlin Mummer T.S. - MBLM	Jumpoff Joe Creek	No	Draft
ERFO/JITW - MBLM	Jumpoff Joe Creek	No	Draft
Savage Green - MBLM	Rogue - Grants Pass	No	Draft
Serpent's Grave T.S. - MBLM	Grave Creek	No	In Progress
Grave Creek West Project: Perkin's Folly T.S. Rock Falls T.S. - all MBLM Angora Butte T.S.	Grave Creek	No	In Progress
ILLINOIS RIVER SECTION 7 SUBBASIN			
Flood Repair Projects - SNF	Sucker Creek Althouse Creek	Yes (Sucker Ck) No	Yes Yes
Layman T.S. - SNF	Sucker Creek	Yes	Yes
Home Page T.S. - SNF	East Fork Illinois River	No	Yes
3+3 T.S. - MBLM	East Fork Illinois River West Fork Illinois River Illinois-Josephine	No No No	Yes Yes No
Briggs Ck Replacement Volume T.S. - SNF	Briggs Creek	No	Yes
Barr None T.S. - SNF	Briggs Creek	No	Yes
Gold Beach Replacement Volume & Shelf T.S.s - SNF	Lawson Creek	Yes (Lawson Creek)	Yes

Table 4. (continued)

Action and Administrative Unit*	HUC 5 Watershed (s)	NWFP Key Watershed?	Watershed Analysis?

LOWER ROGUE RIVER SECTION 7 SUBBASIN			
Gold Beach Replacement Volume & Shelf T.S.s - SNF	Rogue - Gold Beach	Yes (Quosatana Creek)	Yes
ERFO/JITW - MBLM	Rogue - BLM Wild	No	No
ELK RIVER SECTION 7 SUBBASIN			
Road and Flood Repair - SNF	Elk River	Yes (Elk River)	Yes
CHETCO & SOUTH COAST BASIN SECTION 7 SUBBASIN			
Mayfield Creek Culvert - CBBLM	North Fork Chetco River	Yes (North Fork Chetco)	Yes
Stream Crossing & Grade Culvert - CBBLM	North Fork Chetco River	Yes (North Fork Chetco)	Yes
Jim Ray Creek Stream Crossing - CBBLM	North Fork Chetco River	Yes (North Fork Chetco)	Yes
Road Decommissioning - CBBLM	North Fork Chetco River	Yes (North Fork Chetco)	Yes
Noxious Weed Control - CBBLM	North Fork Chetco River	Yes (North Fork Chetco	Yes

* RNF = Rogue National Forest
MBLM = Medford District BLM
SNF = Siskiyou National Forest
CBBLM = Coos Bay District BLM

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